Trainee Job Sheet

I. Introduction

This job sheet is to be used by the trainee to practice warning operations using a simulation in the BMX CWA.

Objective

The training objective of this “virtual reality” simulation is for the trainee to practice their warning methodology and investigate ways to improve local warning operations from the lessons learned in the simulation.

Without a trainer present during the simulation to provide spotter reports, conflicting information, and real-time evaluation, the success of the simulation will rest on the trainee’s ability to self evaluate their methodology during and following the event. This simulation is appropriate for an experienced warning forecaster who is proficient with the mechanics of issuing warnings and can benefit from practicing warning workload management.

Responsibilities

The simulation has been designed for a two person training session with the following responsibilities:

Trainee

Pre-Brief: Analyze the environmental data, issue a written briefing detailing the threat for all severe weather types, and sectorize the county warning area into three warning sectors.

Simulation: Start the simulation, and issue warnings and follow up statements for the sector containing Pickens county.

Post-Brief: Answer questions in the job sheet, discuss with the trainer any lessons learned and how they can be implemented at the local office.

Trainer

Pre-Brief: Set up the simulation for the trainee, provide trainee work-sheets before the simulation session, show trainee how to save a warning to a file.

Simulation: No attendance.

Post-Brief: Discuss trainee's perceptions of performance and any lessons learned from the simulation and how they can be implemented at the local office.

This virtual reality simulation is designed to take 3.5 hours to complete, with 30 minutes for the pre-simulation briefing, 2.5 hours for the simulation, and 30 minutes for the post-brief. The simulation starts at 2302 UTC on April 8th, 1998 and ends at 0130 UTC on April 9th, 1998. As with all simulation examples, times can be adjusted as needed.

II. Pre-simulation Briefing

The objective of the pre-simulation briefing is for the trainee to assess the level of threat for severe weather (tornado, hail, wind, and flash flooding), formulate expectations of timing and evolution of convection, and sectorize the warning operations accordingly.

Trainer Tasks

1. Show trainee how to stop and start the simulator.
2. Show the trainee how to create a warning and save it to a file. To export a warning to a file after the warning has been typed up:
   - In the text editor, click under "File", "Export to File...".
   - Type in the name of the warning at the end of the path in the "filename" box on the bottom of the popup window and click OK.
3. Print map with county names and CWA outline from Support Materials (see Figure C-C-2 on page C-3) for drawing warning sectors.
4. Print out the warning log from Support Materials (see page C-1) so the trainee can keep track of the warnings they issue.

5. Close down any existing D2D sessions, and start the simulator for the time period 2302 UTC on April 8th, 1998 to 0130 UTC on April 9th, 1998.
6. Stop the simulator immediately to allow the trainee to investigate the environment up to the start time
7. Inform the trainee that the flash flood guidance for the BMX CWA is approximately 1.5” for one hour, and 2” for three hours.
8. Point out on the SPC products provided in Appendix B that the CWA is in a high risk area, and that a particularly dangerous situation (PDS) tornado watch has been issued with a threat for damaging tornadoes, hail to 3 inch diameter, and wind gusts to 80 mph.

Trainee tasks:

1. Start a D2D session, and take 30 minutes (or longer, given the background in section I) to analyze the environment of the BMX CWA and document the threat for all severe weather types across the CWA. If the trainee’s local procedures have not been re-created on the WES, the trainee should do so now.

   a. Identify the level of threat for tornadoes, hail, wind, and flooding throughout the CWA.

   b. Identify the reasoning behind each level of threat.

2. Create three warning sectors to divide up warning responsibility into manageable areas based on the data. Annotate these on the map printed out during the pre-simulation briefing. Document the reasoning in the space provided below:

a. What is your rationale for choosing the three sectors?

III. Simulation:

The training objective of this self-guided virtual reality simulation is for the trainee to practice their warning methodology and investigate ways to improve local warning operations from the lessons learned in the simulation. The trainee will be expected to issue warnings, severe weather statements, and issue any products deemed appropriate during the simulation. There will be no pauses during the 2.5 hour simulation.

Trainee tasks:

1. Close down any existing D2D sessions, and start the simulation for the time period 2302 UTC on April 8th, 1998 to 0130 UTC on April 9th, 1998. Then start new D2D sessions. If only a single monitor exists, the trainee may wish to load two D2D sessions on one monitor to help mitigate the hardware limi-

tation. Warn for the warning sector containing Pickens County. Allow 5-10 minutes to set up D2D sessions, and begin warning operations!

2. At 0130 UTC (the end of the simulation), take a 5 minute break.

IV. Post-simulation Briefing

The objective of the post-simulation briefing is to identify strength and weaknesses of the pre-simulation briefing and warning methodology used in the simulation, and develop ways to improve local warning performance. The trainee will be asked to answer questions about their performance and review the storm information given in the Trainer Evaluation Guide on page 6-4. The effectiveness of the post-brief lies on the ability of the trainee to be self critical. Following review of the storm summaries, the trainee should meet with the trainer to discuss any lessons learned and how to improve local operations based on the experience of the simulation.

1. Pre-simulation Briefing Review

a. Review the pre-simulation briefing notes taken earlier. Did your assessment of the threats materialize as you had anticipated? If not, why not?

b. Were the following elements recognized in the pre-simulation briefing?:

- Widespread 0-6 km shear supports supercells throughout the CWA.
- The boundary in the eastern part of the CWA enhances threat for tornadoes as they move across the boundary, and less of a tornado threat as they move into more stable air.
- Elevated instability over the boundary in the eastern part of the CWA supports elevated supercells.

- The surface boundary evident in far NW AL (see vis and sfc obs) enhances tornado threat as boundary continues to destabilize and lift northward.
- The instability maximum in central AL enhances all severe weather threat in the 70°+ dewpoint air.
- Low temperature-dewpoint spreads over central AL limit cold pool production, thereby decreasing damaging wind threat somewhat and increasing significant tornado potential
- Weaker lower tropospheric winds decrease threat for damaging winds.
- Supercell storms support a widespread risk of large hail though wet-bulb zero heights are relatively high.
- Storm speeds do not support a widespread threat of flash flooding except where storms train over same area.
- There is an impending threat of severe weather in southeast, southwest, and northwest part of the CWA requiring warning sector coverage.

If not, why not?

2. Simulation Review

Request and then review the Trainer Evaluation Guide from the trainer. Make notes of any significant features missed in the data, problems you encountered during the simulation, and the methodology you used in the warning process.

3. Trainer/Trainee Discussion

After conducting the self critique of the warning operations, meet with the trainer to summarize perceptions of the simulation and how local warning operations can be improved based on the lessons learned from the simulation.

Trainer Tasks

3a. Some considerations for discussion points include:

- Discuss strengths and weaknesses of the pre-simulation briefing analysis including data sets used.
- Discuss the creation of warning sectors and any problems encountered.
- Discuss the challenges of warning for all the storms in the sector.
- Discuss the challenges of issuing effective warning products for the Birmingham storm.

3b. Review the reports and the times to compare to the warnings.

3c. Discuss the lessons learned from the event, and how best to implement changes at the local forecast office.